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BLUMENBACHIA INSIGNIS A CASUAL PLANT AT SOUTHBRIDGE, MASSACHUSETTS.

LUCIUS E. AMMIDOWN.

THE town of Southbridge, Massachusetts, seems to be a very prolific field for the botanist. For a number of years the writer has made botany a recreation, and has found 874 species and varieties growing in Southbridge. Mr. Fred. W. Rowley, a classmate and friend of the writer, has found in the same way 900 species and varieties within the limits of the town, not including 13 garden escapes, and 47 found along the border of adjoining towns. Each has found many that the other has not seen, so that together we have over 1000 species and varieties as growing within the limits of Southbridge. Each has kept a list of his plants. This includes several of which only a single plant has been seen; also several adventive plants brought here through one means or another. Mr. Rowley is foreman of the wool-sorting department of the Hamilton Woolen Company. This company buys large quantities of wool from Australia, South America, our Western States, and wherever good wool can be obtained. This wool brings with it from other countries many seeds, especially such as are provided with hooks, or are enclosed in burs that cling to the wool. Of course some of these seeds get scattered about the mill yard, and thus plants unknown to this section are produced. Last spring, or early summer, Mr. Rowley called my attention to a plant that had made its appearance near the mill. In due time he announced that it had blossomed, but that he could not find it in our botanies. I went to the place, and there it was, a curiosity surely, the flower a little white star, with red and yellow center. But woe to him who would examine the plant too closely, for it produced a shock that exceeded any nettle

with which I have come in contact. Trailing on the ground, the plant now covers a space perhaps 30 inches or so in diameter. I took some of it home, but soon gave up the botany, and opened Century Dictionary to the word "Nettle." There I found "Chili Nettle," with reference to its order "Loaseae," under which much to my delight I found a fairly good description of our plant. Next I sent a specimen to Gray Herbarium, getting from there the information that the plant is *Blumenbachia insignis*, a native of Chili, and probably unknown, outside of cultivation, in North America. Since then we have found it in Gray's School and Field Botany as a native of Chili. Stem round, with fine stripes of darker green, and covered with long, stinging hairs. Leaves opposite, palmately veined and divided (much resembling leaves of the Skeleton Geranium), their upper surface covered with long hairs, the lower pubescent. Flowers single, nodding, on long, axillary peduncles. Petals 5, cucullate, white, ending with an acute point. Five scale-like petals inside the others and alternate with them, erect, with yellow base and red tips, resembling a corona. Stamens, with slender filaments, in 5 sets, opposite the white petals. Also 10 sterile filaments, in pairs, opposite the inner petals. Style one, long-exserted, stiletto-shaped, pubescent. Sepals 5, short, lanceolate. Ovary inferior, 1-celled, spirally twisted, covered with hairs.

Other adventive plants from the mill yard are *Amarantus spinosus* L., *A. crispus* Braun., *Artemisia annua* L., *Xanthium spinosum* L., *X. Canadense* Mill., *Vernonia Baldwinii* Torr., *Solanum rostratum* Dunal, *Helenium tenuifolium* Nutt., and *Eleusine Indica* L.

Some of these have already spread beyond the confines of the Mill yard, showing a disposition to make themselves at home. Other strange plants have started but are not yet sufficiently developed to be identified.

SOUTHBRIDGE, MASSACHUSETTS.

AN ALPINE VARIETY OF *SOLIDAGO MACROPHYLLA*.

M. L. FERNALD.

BOTANISTS who have collected in the Alpine Garden of Mt. Washington are familiar with a dwarfed extreme of *Solidago macrophylla* which, in some characters other than its low stature, differs from the common tall plant of the wooded slopes of the White Mountain region. The plant of the woods, which is widely distributed through the coniferous forests from Newfoundland and southern Labrador to Lake Superior, south to central Maine and New Hampshire, Mt. Monadnock, Mt. Greylock, and the Catskills, has the involucre of the oblong-cylindric heads composed of linear-attenuate thin, often scarious, bracts. In the plant of the Alpine Garden, on the other hand, the involucre of the much fuller and broader subglobose heads is composed of shorter narrowly deltoid to lanceolate firmer, often subherbaceous, bracts.

As it occurs on Mt. Washington, the alpine plant with broader heads and broader firmer bracts is generally considered an extreme of the woodland *S. macrophylla*. Further north, however, where the latter species with narrow bracts and oblong heads is the commonest goldenrod at low altitudes, it gives way, in the alpine and exposed situations, to the larger-headed plant with broader bracts, so generally as to indicate that this plant is worthy more definite recognition than is ordinarily given it. Thus, in the Gaspé Peninsula of Quebec the typical *S. macrophylla* of Pursh, the plant with oblong heads and linear-attenuate bracts, is everywhere abundant in woods and clearings from sea-level to the wooded mountain-slopes. In the alpine and subalpine regions, however, of the great tablelands of Mt. Albert and of Table-topped Mountain, the common representative of *S. macrophylla* is the plant with broad subglobose heads (in extreme specimens 2 cm. in diameter), which abounds over fully a hundred square miles of alpine meadows and slopes.

Still further north, on the Labrador coast, likewise, the plant of exposed situations is like the large-headed plant of the Alpine Garden. In fact, all the material known to the writer from north of the Straits of Belle Isle is of this plant; and there is no question that it is *S. thyrsoides* which was described in 1830 by Ernst Meyer from Okkak (latitude 57° 30') on the Labrador Coast. The same plant, as found

in the Alpine Garden of Mt. Washington, was also recognized by A. P. de Candolle as distinct from Pursh's *S. macrophylla*. In the Prodrômus, in 1836, de Candolle described the White Mountain plant as *S. leiocarpa*.¹ His material, sent by "Dr. Boot" in 1830 from the White Mountains, is, as shown in the Prodrômus Herbarium, the characteristic plant of the Alpine Garden.

In interpreting the earlier *Solidago macrophylla* of Pursh² we are naturally at a disadvantage from the meagre description and from the fact that the type is apparently not extant.³ Pursh's description was taken from "*Herb. Banks. mss.*" and the plant, "about three feet high" with "calycibus oblongis" came from "Canada." The "Canada" of Banks was, of course, the low forested eastern region where the tall plant with oblong heads and linear-attenuate bracts abounds and where the other is unknown; and it is very safe to assume that this common plant was rightly identified by Dr. Gray⁴ as *S. macrophylla*.

The two plants here discussed are ordinarily well distinguished, but since the only characters by which they seem to differ are those of size of head and breadth of bracts, both features which show a wide range of variation and a strong tendency to intergradation, it is probable that they are best treated as extreme phases of one plant: the woodland *S. macrophylla* of eastern Canada and the upland regions of New England and New York with oblong heads and linear-attenuate thin mostly scarious bracts; and an extreme variation of it growing in more alpine or subarctic regions and characterized by broader subglobose or oblong-ovoid heads and lanceolate to narrowly deltoid greener bracts. This plant of the Labrador coast and of our alpine regions should be called

SOLIDAGO MACROPHYLLA Pursh, var. *thyrsoidea* (E. Meyer) n. comb. *S. thyrsoidea* E. Meyer, Pl. Lab. 63 (1830). *S. leiocarpa* DC. Prodr. v. 339 (1836).—LABRADOR, at various coastal stations: QUEBEC, alpine and subalpine regions of Mt. Albert and of Table-topped Mountain: NEW HAMPSHIRE, Alpine Garden, Mt. Washington.

GRAY HERBARIUM.

¹ DC. Prodr. v. 339 (1836).

² Pursh, Fl. 542 (1814).

³ See Gray, Proc. Am. Acad. xvii, 187 (1882).

⁴ Gray, l. c.

PECULIARITIES OF *BOTRYCHUM LANCEOLATUM* IN AMERICA.

ARTHUR STANLEY PEASE and ALBERT HANFORD MOORE.

WHILE recently examining at the Gray Herbarium specimens of *Botrychium lanceolatum* (Gmel.) Ångstr., we were struck by the dissimilarity of the European and American material. The European plants are distinguished by a coarser habit and by the broader and much more approximate segments of the sterile frond. And their differences are illustrated not only by the European specimens in the Gray Herbarium, but also by various plates, among them *Flora Danica*, vol. xvii, pl. 1922, fig. 2 (1877). The ordinary American plant is well represented by the plate in D. C. Eaton, *Ferns of North America*, vol. i, pl. 5, fig. 2 (1879). A specimen from the island of Unalaska, collected in 1881 by L. M. Turner agrees with the European plant. The following description gives the salient features of the common American plant:

BOTRYCHUM LANCEOLATUM (Gmel.) Ångstr. var. **angustisegmentum** Pease et Moore var. nov. pinnarum segmentis distantioribus quam in speciei exemplis angustisque lanceolatis insignitum.—

Type specimen: MAINE, Bristol, July 19, 1897 (*E. B. Chamberlain*, no. 354, in herb. N. E. B. C.).

Other specimens examined: NOVA SCOTIA, Truemanville, July, 1885 (*H. Trueman*): NEW BRUNSWICK, Fredricton, September 16, 1872 (*J. Fowler*): MAINE, Bridgewater, 1881 and 1882 (*K. Furbish*); Brownville, July 1, 1905 (*J. C. Parlin*); Dover, June 24, 1895 (*M. L. Fernald*); North Berwick, 1893 (*J. C. Parlin*): NEW HAMPSHIRE, Randolph, 1900 (*A. S. Pease*, no. 6); Mt. Chocorua, 1904 (*W. G. Farlow*); Flat-top Mt., Sandwich, June 17, 1899 (*J. H. Sears*); Alstead, July 4, 1899 (*M. L. Fernald*, no. 174): VERMONT, Equinox Mt., July 3-4, 1903 (*W. W. Eggleston*, no. 3172): MASSACHUSETTS, Andover, June 28, 1902 (*A. S. Pease*, no. 5); Sudbury (*E. and C. E. Faxon*); Adams, August 27, 1901 (*M. A. Day*, no. 100): NEW YORK, Palisades (*C. F. Austin*): NEW JERSEY, Closter, August, 1865 (*C. F. Austin*).

CAMBRIDGE, MASSACHUSETTS.

A NEW STATION FOR ASPLENIUM PINNATIFIDUM.—*Asplenium pinnatifidum* Nutt. is a species hardly known to New England collectors. In the summer of 1902 a plant of it was found at Sharon, Connecticut, by Mr. E. I. Huntington and a note stating the fact was published in the Fern Bulletin, xi. 14 (Jan. 1903). This was the first and has remained the only reported station for the plant in New England. The honor of discovering a second station in Connecticut for this interesting little fern belongs to Mr. H. C. Bigelow of New Britain, Connecticut. Mr. Bigelow is an enthusiastic student of our ferns and in the summer of 1906 found three plants of *A. pinnatifidum* growing on an outcropping ledge of shale in Southington, Connecticut. It was growing with *Asplenium platyneuron* Oakes, and *Camp-tosorus rhizophyllus* Link, and there was at first some question whether it might not be a form of the much discussed *A. ebenoides* R. R. Scott, but a careful comparison with other material showed there could be no doubt as to its identity with *A. pinnatifidum* Nutt. The station at Sharon is about twelve miles farther north than Southington, but the latter station is more than thirty miles farther east, bringing the range of this fern well into the central part of Connecticut. One of the plants found at Southington has been placed at the Gray Herbarium.—C. H. BISSELL, Southington, Connecticut.

PRINCIPLES OF BOTANY.¹—It was to be expected that Mr. Bergen and his associate Dr. Davis, authors of the new "Principles of Botany" recently published by Ginn & Co., would make an excellent text-book. Both have had long experience as teachers, both are eager students and investigators, each in his chosen field of the science, and both are able to command forcible and lucid English. Thus the book is eminently readable. Mr. Bergen, besides, from previous success in the same line, knows how to put a text-book together. In this volume he has divided the field with his associate, taking the chapters on the structure and physiology of seed-plants, as well as those on ecology and economic botany, and leaving to Dr. Davis the treatment of morphology, evolution, and classification of plants.

Mr. Bergen's chapters embody a fresh treatment of topics which he has already shown ability to present in his earlier text-books. The arrangement is even better than before. Especially commendable (though not new) is the combination of demonstrations of structure

¹ Bergen and Davis. pp. v + 555. Ginn & Co., Boston, 1906.

with exposition of function. The separation or absolute divorce of these kindred and mutually explanatory topics in many text-books and also in the class room has always been deplorable, but there are signs that in the near future no botanical teaching, even of the simplest kind will be considered acceptable that does not treat the plant as a living thing, and try to show how its organs perform their work. Teachers will find much that is suggestive also, and much to draw them and their classes out of doors in the concluding chapters on plant formations, plant geography, and kindred subjects.

Mr. Bergen's definitions might occasionally be bettered. For instance, the opening sentence of chapter one speaks in traditional terms of the seed as "reproducing the kind of plant which bore it," thus suggesting at the outset a meaning for the word *reproduce* which has to give way later to a much more exact conception of reproduction as distinguished from mere growth. In just this point a text-book ought not to err. So much depends on the exact use of terms, that a teacher must weigh well every word in order not to plant wrong ideas which, like weeds, go on to flourish, and have to be uprooted later. No teacher enjoys weeding an intellectual garden, and he should be especially careful himself to sow only pure seed. Another instance of the same kind is the first definition of the term cell (p. 9) as a "microscopic compartment," replaced later (p. 35) by a second definition — from the biological standpoint — as "a unit of protoplasm, called a protoplast" — and again by a third (p. 158, by Dr. Davis) as "a small mass of protoplasm containing a nucleus." Definitions two and three are italicized in the text.

Of Dr. Davis's chapters almost everything to be said must also be in commendation. His is the harder subject as a matter of presentation, for it is much more complicated and unfamiliar in detail, and necessarily for a beginner bristles with technicalities. The descriptive portion, rich in material and clear in wording, should be easily comprehensible to students intelligent enough to use a compound microscope. The philosophical portion will doubtless be over the heads of all but mature students. It is certainly necessary nowadays to interpret the results of studies in comparative morphology from the evolutionary point of view, but it is none the less difficult, for we are led at once into a region of uncertainty and speculation. In this region a beginner will surely feel the ground insecure, and will have to be forgiven for failure of comprehension, or for that skepticism

which is often in a pupil a welcome sign of intelligence. In his views on evolution and classification, Dr. Davis cannot be accused of being behind the times. In fact, in his advocacy of the hypothesis—advanced only six months ago by one of his pupils¹—of the sporophytic nature of the tetrasporic plants in the Red Algae, he is suggesting (p. 219–p. 220) and even asserting (p. 222) a theory not yet generally accepted or even generally known. This course seems at least unwise in an elementary text-book.

On one topic, of some practical importance, Dr. Davis seems to be satisfied with a treatment that is at once popular and superficial. He does not do justice to the fleshy fungi, or even show great knowledge of them. We should rather expect to be told, for instance, (p. 253) that truffles are subterranean. We have a right to demand that the definition of so important a structure as the *volva* (p. 266) should be explicit and correct. Dr. Davis is following a popular misconception in making this term equivalent to the popular term *cup*, applied to the sheath or bag that encloses the base of the stipe in *Amanita*. The *volva* is much more than this. His error becomes serious, even dangerous, when he teaches that poisonous *Amanitas* all have large *volvas* (i. e. *cups* according to the text). As is well known, *Amanita muscaria* a deadly species common everywhere has a *volva* which is broken into scales on stipe and pileus, and has no cup at all.

The book has abundant and clear illustrations throughout—many of them original, especially those of Dr. Davis.

TWO EDITIONS OF TORREY & GRAY'S FLORA OF NORTH AMERICA. —Some time ago my attention was called to variations in copies of Torrey & Gray's Flora of North America, volume 1, which seem to indicate that some portions have been reprinted. An examination of the type shows that pages 321 to 360 (signatures 41 to 45) inclusive were reset in a slightly different font, so that, while the amount of matter is the same on each page, that of the lines often varies. The Greek letters and figures show clearly the change of type: for instance, the base line of the 2 and the top line of the 7 are curved in the original but straight in the reprint. On page 324 and 325 of the original

¹ Yamanouchi; Bot. Gaz., xli. 425–433, June, 1906.

the names *Hosackia micranthus* and *H. prostratus* appear, while in the reprint these names are corrected to *H. micrantha* and *H. prostrata*. Page 329 of the original bears the number 42, but this is omitted in the reprint. The title-pages of several copies of the work show no indication of a second issue, and why this substitution was made or at what date I am unable to state.—HOWARD W. PRESTON, Providence, Rhode Island.

JUNCUS COMPRESSUS IN THE PROVINCE OF QUEBEC.—A rush which Mr. A. S. Pease found growing abundantly on the Plains of Abraham near the city of Quebec, 30 Aug.—1 Sept., 1904, has been determined as *Juncus compressus* Jacq. This plant, a close relative of the common "black grass" of our salt meadows, is common in inland situations throughout the greater part of Europe and Asia, but has not been reported from America. Although probably introduced on the Plains of Abraham, it is a rush which might be expected to occur as a native in northeastern America, since in general its distribution is parallel to that of a number of rushes of broad range which have been found in the maritime provinces and northeastern states.

The characters by which *Juncus compressus* may be distinguished from the black grass, *Juncus Gerardi* Lois., are somewhat technical. In *Juncus compressus* the anthers are little if at all longer than the filaments, in *Juncus Gerardi* they are thrice as long; in *Juncus compressus* the style is much shorter than in *Juncus Gerardi*; in *Juncus compressus* the sphaeric-obovoid capsule is conspicuously longer than the outer tepals, whereas the ellipsoid capsule of *Juncus Gerardi* is usually about the same length as the tepals. A strong tendency, which cannot, however, be relied upon to separate the plants, is for the primary bract to be longer than the inflorescence in *Juncus compressus* and shorter in *Juncus Gerardi*.—H. H. BARTLETT, Gray Herbarium.

ERRATA.

- Page 12, line 20; *for* July *read* June.
- “ 57, “ 10; “ fig. c *read* fig. b.
- “ 59, “ 38; “ *V. Bernardi* *read* *V. perpensa*.
- “ 65, “ 16; “ dele the figure ¹.
- “ 86, “ 12; “ *filifolia* *read* *filifolium*.
- “ 86, “ 20; “ *erisetum* *read* *Trisetum*.
- “ 88, “ 20; after *Trisetum subspicatum muticum* insert Bolander in.
- “ 106, “ 47; *for* pine *read* spine.
- “ 106, “ 48; “ efer *read* refer.
- “ 111, “ 18; “ **linearis** *read* LINEARIS.
- “ 111, “ 44; “ **linearis** *read* LINEARIS.
- “ 112, “ 35; “ *C. gracilis* *read* *C. gracilis*.
- “ 141, “ 34; “ *interruptum* *read* *interrupta*
- “ 144, “ 34; “ *pennsylvanica* *read* *pennsylvanicum*.
- “ 146, “ 15; “ Kunnebunk *read* Kennebunk.
- “ 167, “ 32; “ Murdock, *read* Murdoch.
- “ 168, “ 22; “ 90 *read* 91.
- “ 187, “ 8; “ Peteskey *read* Petoskey.
- “ 195, “ 3; “ *virgatula* *read* *virgatulum*.
- “ 195, “ 9; “ *roselum* *read* *roseola*.
- “ 198, “ 37; “ for know *read* known.
- “ 210, “ 19; “ *melanocarpum* *read* *melanocarpa*.
- “ 214, “ 11; “ his specimens *read* Dr. Bigelow's specimens.
- On title-page of April number; *for* Proceedings *read* Records.

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